BIT 4th Semester

Web Technology-I

1. What is the meaning of hypertext and markup in HTML. Create a HTML page having title "Myfirstpage" and a Meta tag with name author having content "Gunnu". The page should have a body part having a div with id DV_1 which should contain an ordered list of fruit items namely Orange, Apple2, Banana3 and Kiwi. The item kiwi should also have link to www.kiwi.com. Insert comment "This is kiwi" after the item Kiwi. Also display an alert message "Helloworldx" in onload() event of the body

   Ans:

   In the context of HTML (Hypertext Markup Language), **Hyper means reference/link ,Text means data**. Hypertext means the ability to link documents, images, and other resources through clickable links, enabling navigation between different parts of a document or across different websites.

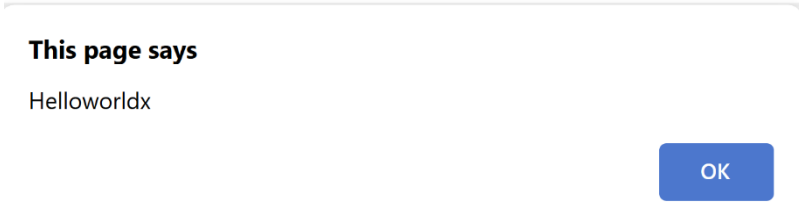
   Markup means predefined, that refers to the HTML tags used to structure the document

   Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="author" content="Gunnu">
  <title>Myfirstpage</title>
  <script>
    function showAlert()
        {
        alert("Helloworldx");
    }
  </script>
</head>
<body onload="showAlert()">
  <div id="DV_1">
```

```
        <ol type="1">
            <li>Orange</li>
            <li>Apple2</li>
            <li>Banana3</li>
            <li><a href="https://www.kiwi.com">Kiwi</a></li>
        </ol>
        <!-- This is kiwi -->
    </div>
</body>
</html>
```

Output:



1. Orange
2. Apple2
3. Banana3
4. Kiwi

2. What is table in HTML? Create a HTML page containing a DIV with name "divtb". The divtb should contain a table as below:

CID	Cname	Marks
BIT251	Web Tech	40
BIT 101	IIT	50

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <title>MyTable </title>
   <style>
      table {
         width: 50%;
         border-collapse: collapse;
      }

      th, td {
         border: 2px dotted black;
         padding: 10px;
         text-align: left;
      }
   </style>
</head>
<body>
   <div id="divtb">
      <table>
         <tr>
            <th>CID</th>
            <th>Cname</th>
            <th>Marks</th>
         </tr>
         <tr>
            <td>BIT251</td>
            <td>Web Tech</td>
            <td>40</td>
         </tr>
         <tr>
            <td>BIT101</td>
            <td>IIT</td>
            <td>50</td>
         </tr>
      </table>
   </div>
</body>
</html>
```

Output:

CID	Cname	Marks
BIT251	Web Tech	40
BIT101	IIT	50

3. **1.** Write HTML code to create HTML form as below and preform form validation using JavaScript

The validation should be as;

Username: Allows 5-15 characters, letters, numbers, and underscores

Password: Requires at least one uppercase letter, one lowercase letter, one digit, one special character, and must be at least 8 characters long.

Code:

```
<!DOCTYPE html>
<html>
<head>
<title>FormValidation</title>
  <script>
    function validateForm() {
      const username = document.getElementById("username").value;
      const password = document.getElementById("password").value;
      const country = document.getElementById("country").value;
      const gender = document.querySelector('input[name="gender"]:checked');
      // Username validation:
      const usernameRegex = /^[a-zA-Z0-9_]{5,15}$/;
      if (!usernameRegex.test(username)) {
        alert("Username must be 5-15 characters and contain only letters, numbers, and underscores.");
        return false;
      }
      // Password validation:
  const passwordRegex = /^(?=.*[a-z])(?=.*[A-Z])(?=.*\d)(?=.*[@$!%*?&])[A-Za-z\d@$!%*?&]{8,}$/;
      if (!passwordRegex.test(password)) {
        alert("Password must have at least one uppercase letter, one lowercase letter, one digit, one special character, and must be at least 8 characters long.");
        return false;
      }
```

```
            // Country selection validation
            if (country === "Select") {
                alert("Please select a country.");
                return false;
            }
            // Gender selection validation
            if (!gender) {
                alert("Please select a gender.");
                return false;
            }
            // If all validations pass
            alert("Form submitted successfully!");
            return true;
        }
    </script>
</head>
<body>
    <form onsubmit="return validateForm()">
        <label for="username">Username:</label>
        <input type="text" id="username" name="username" required><br><br>

        <label for="password">Password:</label>
        <input type="password" id="password" name="password" required><br><br>

        <label for="country">Country:</label>
        <select id="country" name="country" required>
            <option value="Select">Select</option>
            <option value="USA">USA</option>
            <option value="Canada">Canada</option>
            <option value="India">India</option>
```

```
    </select><br><br>
    <label for="gender">Gender:</label>
    <input type="radio" id="male" name="gender" value="M"> M
    <input type="radio" id="female" name="gender" value="F"> F<br><br>
    <button type="submit">Submit</button>
  </form>
</body>
</html>
```

4. What is the use of XML? Create a XML file with simple type and complex type elements. Write its equivalent DTD.

   XML is widely used for storing, sharing, exchanging ,creating and transporting data in a structured and platform-independent way. Or

   XML is commonly used to transmit data between applications and systems, particularly in web services

   XML file with simple type and complex type elements

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE library SYSTEM "library.dtd">
<library>
  <book>
    <title>C-Programming </title>
    <author>Balaguru</author>
    <price currency="USD">30</price>
  </book>
  <book>
    <title>DBMS</title>
    <author>John</author>
    <price currency="EUR">20</price>
  </book>
</library>
```

equivalent DTD

```
<!ELEMENT library (book+)>
<!ELEMENT book (title, author, price)>
<!ELEMENT title (#PCDATA)>
<!ELEMENT author (#PCDATA)>
<!ELEMENT price (#PCDATA)>
<!ATTLIST price currency CDATA #REQUIRED>
```

5. **Given following XML, Write its equivalent XSD.**

```
<university>
<college name=”MMAMC”>
    <program>BIT</program>
</college>
</university>
```

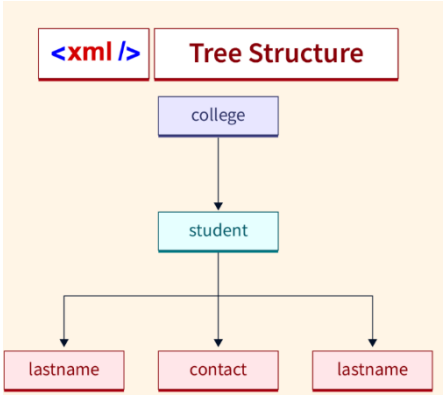
Code:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">
  <xs:element name="university">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="college">
          <xs:complexType>
            <xs:sequence>
      <xs:element name="program" type="xs:string"/>
            </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required"/>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

6. What is XML tree? Differentiate between static website and dynamic website.

An **XML tree** is a hierarchical representation of an XML document's structure. It visualizes the relationships between elements, attributes, and text in a document, making it easier to understand and navigate the XML data.

For example:



The difference between Static website and Dynamic website:

Static website	Dynamic website
1. A webpage with fixed content that doesn't change unless manually updated.	1. A webpage whose content changes dynamically based on user interaction, database queries, or other factors.
2. Technology used: HTML,CSS and Basic Javascript	2. Technology used : PHP,Python,ASP.Net etc.
3. Easy to develop	3. Required programming skills
4. It sends exactly the same response for ecery request	4. It may generate different HTML for each request.
5. No database connection	5. Typically connected to a database to fetch or store content.
6. Performance: faster	6. Performance: slower due to server side processing